



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/826,035

04/04/2001

Robert J. Devins

BUR920000154US1

3793

7590

03/16/2004

William E. Curry

Pollock, Vande Sande & Amernick, R.L.L.P.

PO Box 19088

Washington, DC 20036-3425

EXAMINER

NGHIEM, MICHAEL P

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,035

Applicant(s)

DEVINS ET AL.

Examiner

Michael P Nghiem

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003 and 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

The Communications filed on September 3, 2003 and December 9, 2003 have been acknowledged.

Petition

1. The petition pursuant to 37 CFR 1.47, filed on April 4, 2001, has been granted on November 17, 2003.

Claim Objections

2. Claims 2, 6, 7, 9, 11, 13, 14, 17, and 19 are objected to because of the following informalities:

- "external interface" should be -- internal interface--. Fig. 1 shows that the core (101) has an interface (SOC INTERFACE) being **internal** to the design (100). It is noted that the mirror interface (101M) is external to the design (101).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2863

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Devins et al. (US 6,539,522).

Regarding claims 1, 6, 7, 11, 13, 15, 17, and 18, Devins et al. discloses a verification test bench system and method (Figs. 1, 8-10) used in testing in a core (processor core, e.g. 112, column 13, line 5) which is used in a design (203) which comprises:

- a bus functional model (900) which comprises a mirror interface to the core (900 emulates processor core, column 13, lines 10-14) and memory (memory is inherently required for storing and executing 901, column 13, lines 25-28);
- a bi-directional general purpose I/O device (1007, 1008);
- a control mechanism (TOS 200) which comprises:
 - a standardized handshake protocol between the design and the mirror interface (handshake interface between BFM 900 and 203, Fig. 9);
 - control code loaded into the bus functional model that controls data flow, transfer direction, and data checking when a test case is running in the design (column 13, lines 21-37).

Regarding claims 2, 8, 9, 14, 19, and 20, Devins et al. discloses that said core has an interface (interface of 203 to 900) to said design (Fig. 9), said mirror interface is coupled to said interface (900 and 203 are coupled by their respective interfaces), and said test case issues directives in said handshake protocol to initiate and control an exchange of data between said mirror interface and interface (via 200, 900, column 13, lines 26-28, Fig. 9).

Regarding claims 3 and 16, Devins et al. discloses that said bi-directional general purpose I/O device is coupled between said design and said bus functional model, and transfers said directives between said design and said bus functional model (1007, 1008 is between 100 and 1005, Fig. 10b).

Regarding claims 4, 10, 12, 18, and 20, Devins et al. discloses that said control code responds to said directives by configuring said mirror interface for said exchange of data (Fig. 9 shows 900 being "configured" to exchange data).

Regarding claim 5, Devins et al. discloses that said control code verifies results of said exchange of data (column 13, lines 34-37).

Regarding claim 6, Devins et al. further discloses a test case executing in said SOC (via 200, 900) which applies verification stimuli to said interface using said control mechanism (column 13, lines 22-25).

Art Unit: 2863

Regarding claim 17, Devins et al. further discloses a program product (TOS) tangibly embodied on a computer-usable medium (e.g. workstation, column 12, lines 67 – column 13, line 1), said program product comprising computer-executable instructions (column 12, lines 43-47, lines 55-57) which when executed implement a process.

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2272. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

0956.


MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

March 12, 2004